

**NOTES ON THE LIFE HISTORY OF *PAPILIO AMYNTHOR*
AMPHIARAUS C. & R. FELDER (LEPIDOPTERA: PAPILIONIDAE)
FROM NORFOLK ISLAND**

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Abstract

Additional life history notes on *Papilio amynthor amphiaraus* C. & R. Felder from Norfolk Island are presented and the immature stages illustrated for the first time.

Introduction

Two subspecies of *Papilio amynthor* Boisduval have been recognised (Hancock 1983). *P. a. amynthor* Boisduval is known from New Caledonia and the nearby Loyalty Islands (Holloway and Peters 1976), while *P. a. amphiaraus* C. & R. Felder [= *P. ilioneus* Donovan] occurs on Norfolk Island (Smithers 1970).

The life history of *P. a. amynthor* is unrecorded. Holloway and Peters (1976) made no mention of the early stages, although they stated that 'it frequents citrus in cultivated areas and forest margins.'

The life history of *P. a. amphiaraus* was discussed briefly by Smithers (1970, as *P. ilioneus*), who noted the variation in colour of the final instar larva and recorded *Citrus limon* (lemon: Rutaceae) and *Zanthoxylum pinnatum* (Little yellow-wood: Rutaceae) as larval host plants.

In January 2003, all immature stages of *P. a. amphiaraus* were found on cultivated citrus growing in gardens on Norfolk Island. Further details of the life history were observed and are presented below.

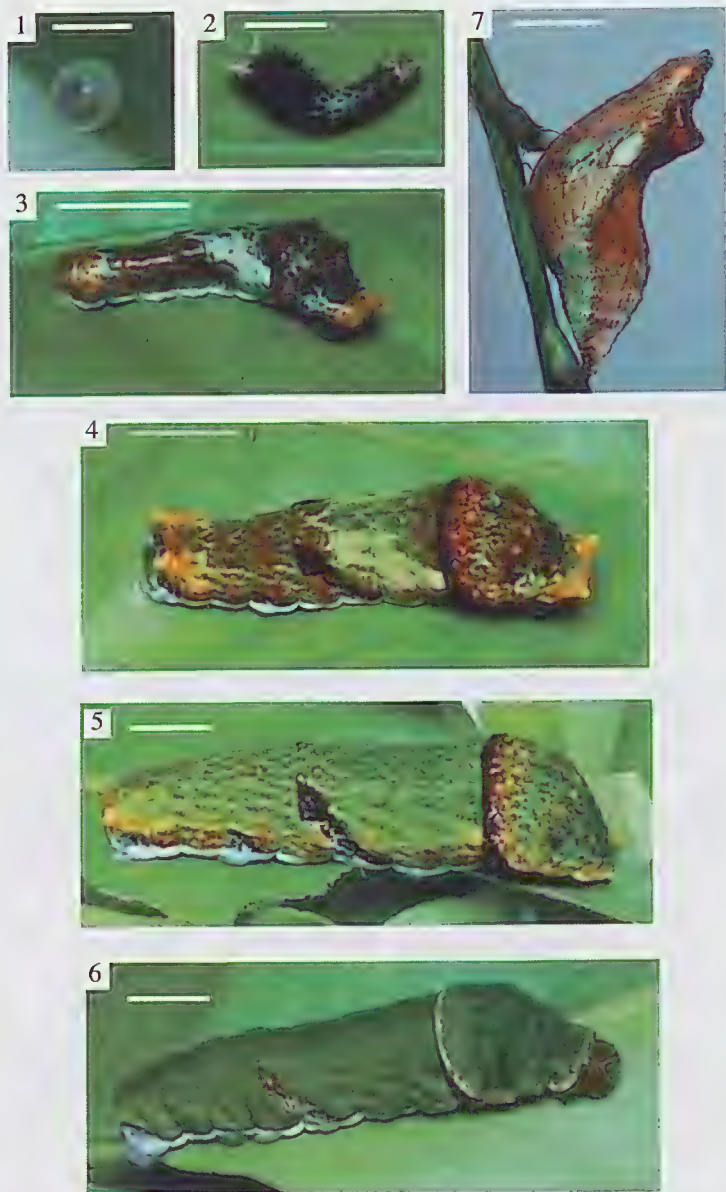
Life history

Foodplant. *Citrus limon* (Rutaceae).

Egg (Fig. 1). Spherical, cream-yellow and smooth; 1.8 mm in diameter.

First instar larva (Fig. 2). Length 4 mm. Head dark brown to black; prothoracic spines dark brown and dark cream posteriorly; body dark brown with black dorsal spines on abdominal segments; pale white dorsal saddle on abdominal segments 1-4; whitish dorsal stripe on abdominal segment 8; anal segment with spines white above a yellowish orange dorsal stripe.

Second and third instar larvae (Fig. 3). Length 6-15 mm. Head mid brown to beige; prothoracic horns well developed and pale orange; thoracic segment humped and dark brown; abdominal segments 1-3 with white saddle; anal segment with small orange horns; greenish spiracular stripe edged below with a white stripe; spiracles black.



Figs 1-7. *Papilio amynthor amphiaraus*, immature stages. (1) egg; (2) first instar larva; (3) late third instar larva; (4) fourth instar larva; (5-6) final instar larval colour forms; (7) pupa. Scale bars: Figs 1-2 = 2 mm; Figs 3-7 = 1 cm.



Figs 8–11. *Papilio amyntor amphiaras*, upper and undersides of adults. (8, 10) male; (9, 11) female.

Fourth instar larva (Fig. 4). Length 32–40 mm. Head pale brown; body variable mottled green, brown and cream with prothoracic and anal horns yellow; distinctive black collar around abdominal segment 1; a distinctive pair of black stripes starting ventrally on abdominal segment 4 and broadening dorsolaterally on abdominal segment 5; white subspiracular stripe with distinctive black stripes above on abdominal segments 6 and 9; anal plate translucent green.

Final instar larva (Figs 5–6). Length 58–61 mm. Head pale brown with whitish-grey inverted Y edged with thin black lines; body variable but generally occurring in two colour forms. Form 1 (Fig. 5) has the body mottled green and yellowish cream, with distinctive brown and black collar on abdominal segment 1; body smooth with small horns on the anal segment and prothoracic plate varying in colour from green to pale orange; a distinctive pair of mottled black and white stripes starting ventrally on abdominal segment 4 and broadening dorsolaterally to abdominal segment 5; abdominal segments sometimes marked ventrally with brown; white subspiracular stripe

with distinctive black stripes above on abdominal segments 6 and 9; anal plate black. Form 2 (Fig. 6) has the body mottled dark green to pale green; distinctive white collar edged with thin black lines on abdominal segment 1; body smooth with small green horns on the anal segment and prothoracic plate; a distinctive pair of mottled brown and white stripes starting ventrally on abdominal segment 4 and broadening dorsolaterally to abdominal segment 5; white subspiracular stripe lined above with a thin black line thickening towards anal segments; anal plate dark brown to black.

Pupa (Fig. 7). Length 38-41 mm. Slight variation in colouring ($n = 4$) but generally brown with white to green chevron bilaterally on the thoracic lateral projections and extending to the wing cases; head with two anterior projections; thorax with dorsal projection; dorsal abdominal segments brown and ventral abdominal segments green; attached by the cremaster and supported by a silken girdle.

Discussion

As is typical of the genus, eggs were found on young foliage and older larvae occurred on all leaf stages of the food plant. Adults (Figs 8-11) were present but uncommon, with most found flying in areas of dense forest adjacent to creeks or, occasionally, in suburban gardens. Adult females were a deeper brown with the yellow areas much more orange than those illustrated previously (Braby 2000, D'Abrera 1990), although this may merely represent seasonal colour variation.

Acknowledgements

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